REMARKS

Favorable reconsideration of this application, in light of the present amendments and following discussion, is respectfully requested.

Claims 11-20 are pending; no claims are newly added, amended, or canceled herewith.

In the outstanding Office Action, Claims 11 and 13-16 were rejected under 35 U.S.C. § 102(b) as anticipated by Linn et al. (U.S. Pat. No. 5,387,555, hereafter Linn); and Claims 12 and 17-20 were rejected under 35 U.S.C. § 103(a) as unpatentable over Linn in view of Goesele et al. (U.S. Pat. No. 5,877,070, hereafter Goesele). Those rejections are traversed for the below discussed reasons.

In the past, several solutions have been proposed for creating conducting bonding of two plates of silicon. These solutions form a silicide from a metal deposited on the faces of the plates to be bonded, by reaction of the metal and a semiconductor material. These solutions have numerous disadvantages. First, the formation of the silicide consumes a part of the semiconductor film, which may be a disadvantage in the case of very thin films. Additionally, there is diffusion of the metal into the semiconductor, which degrades the properties of the semiconductor. Moreover, the compounds formed are not stable at high temperatures, which restricts the possibilities for heat treatment after creation of the bonding.[1]

To overcome these difficulties, the Applicants developed the claimed invention, as recited, for example, in Claim 11. Claim 11 recites a method of creating an electrically conducting bonding between a face of a first semiconductor element and a face of a second semiconductor element by heat treatment, including depositing at least one layer of material on the face of the first semiconductor element and at least one layer of material on the face of the second semiconductor element, these deposited layers combining during the heat

[1] Specification, page 2, lines 17-30.

treatment to form a layer that provides an electrically conducting bonding between the two faces.

Linn relates to a bonded wafer processing with metal silicidation. The Office Action states at page 3 that Linn teaches combining the layers to form a layer that provides an electrically conducting bonding between the two faces. However, Figures 3C, 4B, and 5B of Linn describe that at least one electrically insulating material is interposed between the electrically conductive material layer and semiconductor elements, the whole material being an electrical insulator. These insulative properties are embodied in the silicon-on-insulator integrated circuit provided by Linn.[2] Forming the at least one electrically insulating layer between the conducting layer and at least one of the two semiconductor elements, as described in Linn,[3] does not establish an electrically conducting bonding between two semiconductor faces.

Accordingly, as Linn fails to disclose or suggest the features recited in Claim 11, it is respectfully submitted that Claim 11 patentably distinguishes over Linn.

Likewise, it is respectfully submitted that Claims 12-20 patentably distinguish over Linn for the reasons set forth with regard to Claim 11, from which Claims 12-20 depend. It is therefore respectfully requested that this rejection be withdrawn.

With regard to the rejection Claims 12 and 17-20 under 35 U.S.C. § 103(a) as unpatentable over Linn in view of Goesele, that rejection is also traversed. Claims 12 and 17-20 depend from Claim 11.

As noted above, Linn fails to disclose or suggest depositing at least one layer of material on the face of the first semiconductor element and at least one layer of material on the face of the second semiconductor element. It is respectfully submitted that Goesele fails to remedy this deficiency of Linn.

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[2] See, e.g., Linn, col. 5, line 15.
[3] Id. at col. 3, lines 38-53, col. 5, lines 40-43, and col. 6, lines 51-57.

Goesele relates to a method for transfer of thin layers of monocrystalline material to a desirable substrate. Goesele, like Linn, does not teach any type of electrically conducting bonding.

As neither Linn nor Goesele, either alone or in combination, discloses or suggests the features of Claim 11, from which Claims 12 and 17-20 depend, it is respectfully submitted that these claims patentably distinguish over the applied combination of Linn and Goesele. It is therefore respectfully requested that this rejection be withdrawn.

Moreover, it is respectfully submitted that there is no basis in the teachings of either Linn or Goesele to support the applied combination. Certainly, the Office Action fails to cite to any specific teachings within either reference to support the applied combination. It is therefore respectfully submitted the combination of Linn and Goesele is based upon hindsight reconstruction, and is improper.

Consequently, in view of the foregoing discussion and present amendments, it is respectfully submitted that this application is in condition for allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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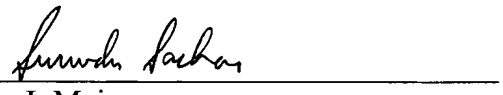

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